

Diabetes & Fatty Liver - Consequence or cause?

It's no secret that Malta keeps topping the lists for obesity and diabetes rates in EU, with almost a third of the population obese and a tenth of the population suffering from Type 2 diabetes.

Attention has been shifting to the increasing number of people being diagnosed with fatty liver, medically termed as Non- alcoholic fatty liver disease (NAFLD). This condition is associated with the build up of fat in the liver in the absence of alcohol consumption or other chronic liver diseases. The buildup of fat causes the liver tissue to balloon and inflame resulting in permanent liver damage.

The increase in obesity and diabetes rates, in line with the increase in people being diagnosed with fatty liver, sparked a need to identify the relationship between these diseases. Particularly since, in parallel there is a global shift to a more sedentary lifestyle and unhealthy eating patterns.

With the emerging popularity of the Western diet, studies have shown an increase in consumption of saturated fats, sugars, confectionaries, soft drinks and processed foods, resulting in increased levels of sugar circulating the body and storage of fat in the liver. This pathway is observed in patients suffering from both diabetes and fatty liver. Having a screening pathway where one refers patients with diabetes for fatty liver screening and vice versa, would therefore aid the chances of earlier detection of both diseases and allow for reversibility.

As part of my Master's studies, which was funded by the Tertiary Education Scholarship Scheme using national funds, I conducted research to correlate the level of sugar in the blood with the level of fat in the liver. As a researcher, I wanted to explore the link between diabetes and fatty liver, and whether one may predict the other.

HbA1c, a marker taken in blood tests to identify the level of sugar in the blood was used, and compared with another marker known as proton density fat-fraction PDFF, which was obtained from a Magnetic Resonance Imaging (MRI) scan of the liver of the same patient. The study was based on 125 patients, of which 78% were found to have fatty liver and 53% were diabetic. The relationship between blood glucose levels and fatty liver was strong indicating that both markers can be a predictor of each other.

In clinical practice, this outcome showed that if a blood test marks high levels of HbA1c, the patient may also be referred for a screening MRI of the liver, since he/she is strongly likely to also have fatty liver. The opposite scenario may occur, whereby a patient diagnosed with fatty liver on MRI, can be also screened for diabetes by taking a blood test.

There's some good news though, both fatty liver and diabetes (Type 2) are reversible through exercise and diet. Clinical practice guidelines recommend a lifestyle correction to address this problem, whereby patients are advised to engage in some light jogging/ walking or resistance training for at least 2.5 hours per week and follow a diet composed of low-to-moderate fat and moderate-to-high carbohydrate intake. For patients with fatty liver that are overweight, studies have shown that a 7-10% weight loss can reduce the amount of fat in the liver.

References.

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